

1792A
EA02-17
5401
E-99-376
Hobart Butte

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

ENVIRONMENTAL ASSESSMENT NO. OR090-02-17
Hobart Butte Timber Sale

I. INTRODUCTION
A. PURPOSE OF AND NEED FOR THE ACTION

This action proposes timber harvest and other forest management activities, including fish habitat enhancement, within a project area located in Section 25, Township 22 South, Range 4 West, and Section 31, Township 22 South, Range 3 West, Willamette Meridian, Lane County, Oregon, in the Upper Willamette Resource Area of the Eugene District of the Bureau of Land Management (BLM).

The project area is within the Matrix Land Use Allocation and has management objectives for Connectivity and Riparian Reserves. Within the Connectivity portion of the project area, the purpose of the Proposed Action is to provide a sustainable flow of forest products and improve stand vigor to accelerate diameter growth. The need for the action is established in the Eugene District Record of Decision and Resource Management Plan, which directs that timber be harvested from Matrix lands to provide a sustainable supply of timber, and by the fact that the stands within the project area are approaching a level of competition at which suppression mortality occurs.

The purpose of the Proposed Action within the Riparian Reserves is to reduce stand density to accelerate diameter growth, and to enhance the physical characteristics and biological processes within two fish-bearing streams. The need for the action is established in the Eugene District Record of Decision and Resource Management Plan, which directs that silvicultural practices be applied in Riparian Reserves to acquire desired vegetative and structural characteristics needed to attain Aquatic Conservation Strategy (ACS) objectives, and that instream restoration be applied to fish bearing streams to enhance habitat conditions for native aquatic vertebrate and invertebrate species.

B. CONFORMANCE WITH LAND USE PLAN

The Proposed Action and alternatives are in conformance with the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl, April 1994 (ROD)*, and the *"Eugene District Record of Decision and Resource Management Plan," June 1995 (RMP)*, as amended by the *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines*, USDA Forest Service and USDI Bureau of Land Management, January 2001.

Additional site-specific information is available in the Hobart Butte Timber Sale project analysis file. This file and the above referenced documents are available for review at the Eugene District Office.

II. ISSUES

A. ISSUES SELECTED FOR ANALYSIS

The following issues were identified during development of the action alternatives:

Issue 1: *How would timber harvests and roading affect attainment of Aquatic Conservation Strategy (ACS) objectives at the watershed scale?*

In order for a proposal to comply with the Northwest Forest Plan, it must be shown that the project, at a minimum, does not prevent or retard attainment of the nine Aquatic Conservation Strategy Objectives on a watershed or landscape scale. Activities described in the Proposed Action and alternatives may have some effect on BLM's ability to meet these objectives.

Issue 2: *How would timber harvests and roading affect northern spotted owl foraging and dispersal habitat?*

The project area lies within a larger area identified by the U.S. Fish and Wildlife Service (USFWS) as being critical habitat for northern spotted owls. Critical habitat consists of habitat capable of supporting nesting, roosting, and foraging for resident owls, and dispersal habitat for owls seeking unoccupied territories. Timber harvests could affect one or more of these important habitat functions.

Issue 3: *How would timber harvests and roading affect the spread of scotchbroom?*

The project area is adjacent to a powerline right-of-way corridor in which dense thickets of scotchbroom, a noxious weed, are found. Scotchbroom can spread laterally from the powerline corridor if light conditions are created through loss of overstory vegetation, such as might occur in a timber harvest.

III. PROPOSED ACTION AND ALTERNATIVES

The project area is approximately 480 acres. The Proposed Action and Alternative A consider timber harvest and other forest management activities on approximately **210** acres (**200** Matrix acres, **10** Riparian Reserve) and fish habitat enhancement treatments on approximately **10** Riparian Reserve acres. Alternative B considers timber harvest and other forest management activities on approximately **200** Matrix acres. Alternative C considers timber harvest and other forest management activities on approximately **55** acres (**50** Matrix acres, **5** Riparian Reserve acres).

Table 1. Hobart Butte Comparison of Alternatives

	Proposed Action: DM Matrix & RR		Alternative A: DM Matrix and RR with scotch- broom buffer		Alternative B: DM Matrix Only		Alternative C: No New Roads	
	acres	volume	acres	volume	acres	volume	acres	volume
Matrix - light thinning (120 TPA)	30	210 mbf*	30	210 mbf	30	210 mbf	25	175 mbf
Matrix - moderate thinning (90 TPA)	170	1,530 mbf	168	1,512 mbf	170	1,530 mbf	25	225mbf
Riparian Reserve - heavy thinning (70 TPA)	10	110 mbf	10	110 mbf	0	0 mbf	5	55 mbf
Totals	210	1.8 MMBF**	208	1.8 MMBF	200	1.7 MMBF	55	0.5 MMBF
Construction and decommissioning of new roads	4,000 feet 1.5 acres		4,000 feet 1.5 acres		4,000 feet 1.5 acres		0 feet 0 acres	
Renovation and decommissioning of old roads (feet)	Ren.	Decomm.	Ren.	Decomm.	Ren.	Decomm.	Ren.	Decomm.
	5,600	3,900	5,600	3,900	5,600	3,900	1,700	0
Fish Habitat Enhancement (linear feet of stream)	3,200 feet		3,200 feet		0 feet		3,200 feet	

* mbf = thousand board feet

** MMBF = million board feet

A. PROPOSED ACTION - Density Management/Riparian Reserve Treatment

The Proposed Action is designed to provide forest products, promote diameter growth, and increase the amount of in-stream structure in fish bearing streams (see map). This alternative proposes thinning the Matrix lands from below to two densities; treating the outer Riparian Reserves by thinning; and falling large woody debris within two streams. Approximately 1.8 million board feet (MMBF) of timber would be offered for sale.

Silviculture

All trees not specifically identified for retention would be cut.

No trees would be planted; therefore no site preparation would be needed. Hazard reduction would include covering and fall burning of debris piles created by harvest operations along project roads and spurs to remove point sources for intense fire behavior and long-range spotting should a wildfire occur in the project area. An excavator may be used on County Road 2765 and Road No. 22-3-31 to pile debris within 25 feet from the roadways.

Retention

In the light thin areas, green trees would be retained at an average density of 120 trees per acre (TPA).

In the moderate thin areas, green trees would be retained at an average density of 90 TPA.

In the heavy thin areas, green trees would be retained at an average density of 70 TPA.

Spacing would be varied to reserve the largest trees. Hardwood trees would be retained where possible. Minor conifer species would be favored for retention over Douglas-fir as long as they are of good size and vigor. Snags and large remnant seed trees would be retained where possible. Snags or remnant seed trees that pose a safety hazard to woods workers would be felled and retained for coarse woody debris. Downed woody debris of decay classes 3, 4, and 5 would be retained where possible.

Reserves

Two patches of late-successional timber would be reserved from harvest.

Riparian Reserve widths for non-fish bearing streams in the Upper Coast Fork Willamette Watershed are based on the height of one site-potential tree (200 feet) on both sides of the stream; for fish bearing streams Riparian Reserve widths are twice the height of one site-potential tree (400 feet). This is in accordance with the standards and guidelines in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (NSO ROD) (Appendix C, pp. 31-38).

The Riparian Reserves for fish bearing Streams 13 and 19 would receive an in-stream structure treatment as described under "Fish Habitat Enhancement."

The Riparian Reserves for non-fish bearing Streams 1, 3, 4, 6-8, 21, and 22 would be thinned to within approximately 100 feet of the streams. The area from 100-200 feet from these streams is the heavy thin area.

A portion of the Riparian Reserve for Stream 13 would be thinned to within approximately 100 feet from the stream. The area from 100-200 feet from this stream is the heavy thin area. The area from 200-400 feet of this stream would be treated to the same density as adjacent uplands.

Springs 2, 10, and 25, and Seeps 5, 9, and 24 would all be reserved to their extents.

All known *Megomphix hemphilli* sites would be managed according to current management recommendations. Approximately nine acres would be set aside as *Megomphix* reserves.

All active red tree vole nests, and those inactive red tree vole nests within 100 meters of an active nest, would be protected with a 10-acre Habitat Area according to the Management Recommendations for the Oregon Red Tree Vole, version 2.0.

Fish Habitat Enhancement

To provide instream structure for Streams 13 and 19, 50-75 trees total within the Riparian Reserves would be felled into the streams. Tree selection would focus on larger trees that would provide adequate channel structure without jeopardizing streamside shade or streambank integrity. A 25-foot "no-cut" buffer along both sides of each stream would be established to maintain streambank integrity. Approximately 1,500 feet of Stream 13 and 1,700 feet of Stream 19 would be treated. The proposal would be implemented by a service contract separate from the timber sale contract.

Roads and Yarding

Approximately 4,000 feet of dirt road would be constructed (Spurs D and F and 150 feet of Road No. 22-4-25.1) and 5,600 feet of existing road would be renovated (Road Nos. 22-4-25.1, 22-3-31.71, 22-3-31 Segments A (1700 feet) and B (400 feet)). Roads would have a 14-foot subgrade width with no ditch and outslopped, where possible.

Newly constructed and renovated roads would be blocked and water barred between logging seasons. Completion of the project would take no more than 3 years. Upon completion of the project, newly constructed roads and landings would be blocked and subsoiled (i.e. mechanically breaking up the compacted area of the road). Renovated Roads No. 22-4-25.1, 22-3-31.71, and 22-3-31 Segment B would also be blocked and subsoiled upon completion of operations. Road No. 22-3-31 Segment A would not be decommissioned. Approximately 100 feet of Road No. 22-4-25.1 would not be subsoiled to help avoid the spread of scotchbroom by mechanical methods, and approximately 75 feet of it would not be subsoiled to protect a red-legged frog population.

The scotchbroom-infested portion of Road No. 22-3-30 would be brushed prior to road construction, if needed. Because Road No. 22-4-25.1 would begin in an area infested with scotchbroom, the following would take place during construction: road renovation equipment would be walked into the project area, and soil from the first 50 feet of road construction would be pushed out of the proposed harvest area. Road renovation equipment would be washed after pioneering of the first 100 feet of Road No. 22-4-25.1 is completed and prior to entering the harvest area to minimize spread of scotchbroom seed into non-infested areas. The operator may use a high-pressure water hose, such as on a fire truck.

To protect a red-legged tree frog population, renovation of approximately 75 feet of Road No. 22-4-25.1 would raise the roadbed above the existing waterline in late summer or early fall. Operations could continue throughout the remainder of the dry season but must cease during the breeding season and during juvenile metamorphosis (February-June). Operations could then continue the following dry season.

The Riparian Reserves, where harvested, and the uplands would be logged with both cable and ground-based yarding systems while adhering to the relevant Best Management Practices (BMPs) listed in Appendix C of the RMP. These include, but are not limited to: front end suspension of the logs during cable yarding; use of existing skid trails where possible during ground-based yarding; limiting new skid trails to less than 35% slope; using designated skid trails; limiting skidding operations to periods of low soil moisture; and subsoiling compacted trails. Other Yarding Methods BMPs appear in the RMP but would not be relevant to this project area or action. For example, BMPs addressing yarding over streams are not considered relevant because yarding over streams is not proposed in this action.

B. ALTERNATIVE A - Density Management/Riparian Reserve Treatment with Scotchbroom Buffer

This alternative would be identical to the Proposed Action except there would be a scotchbroom buffer as described below. Approximately 1.8 MMBF of timber would be offered for sale.

Reserves

Approximately two Matrix acres would be reserved and excluded from treatment to slow encroachment of scotchbroom into the harvest area. This reserve would originate in the area where Sections 25 and 31 meet under the power line and would extend approximately 50 feet into the proposed harvest area. From the corner where the two sections meet, the reserve would extend along the north line of Section 31 for 550 feet; and along the west line of Section 31 for 800 feet. See the map for Alternative A.

All other **Reserve** features, and all other design features including **Silviculture**, **Retention**, **Fish Habitat Enhancement**, and **Roads and Yarding** would be the same as the Proposed Action.

C. ALTERNATIVE B - Density Management

Alternative B would be identical to the Proposed Action with two exceptions. There would be no harvest in any of the Riparian Reserves and there would be no stream enhancement project. Harvest volume would be estimated at 1.7 MMBF.

All other **Reserve** features, and all other design features including **Silviculture**, **Retention**, and **Roads and Yarding** would be the same as the Proposed Action.

D. ALTERNATIVE C - No New Road Construction

Alternative C would be similar to the Proposed Action except that no new roads would be constructed. Harvest volume would be estimated at 0.5 MMBF.

Roads and Yarding

Approximately 1,700 feet of existing Road No. 22-3-31 (Segment A) would be renovated as described in the Proposed Action. Segment B would not be renovated or decommissioned. Road Nos. 22-4-25.1 and 22-3-31.71 would not be renovated or decommissioned because the first 100 feet of Road No. 22-4-25.1 would be new construction; nor would new road construction described in the Proposed Action occur.

All other **Roads and Yarding** features, and all other design features including **Silviculture**, **Retention**, **Fish Habitat Enhancement**, and **Reserves** would be the same as the Proposed Action.

E. ALTERNATIVE D - No action

All timber harvest activities would be deferred; no management activities described under the Proposed Action, Alternative A, B or C would occur, and no timber would be offered for sale at this time. Because most of the project area is within the Matrix land use allocation, it may be considered for future timber harvests even if this alternative is selected at this time.

F. ALTERNATIVES CONSIDERED but not Analyzed

Helicopter yarding was considered but not analyzed. The estimated amount of road and landing construction that would be required was approximately the same as that required for using conventional methods as described in the Proposed Action; two service landings would have been rocked, an impact not expected from the Proposed Action; and the cost of helicopter yarding would have greatly exceeded the cost of conventional methods.

IV. EXISTING CONDITIONS

A. GENERAL SETTING

The project area is in the Willamette Province and in the Upper Coast Fork Willamette Watershed, formerly known as the Cottage Grove Lake/Big River Watershed. Watershed analysis has been completed (BLM Eugene District, Cottage Grove Lake/Big River Watershed Analysis, May 1997). The Cottage Grove Lake/Big River Watershed Analysis analyzed the condition of the Riparian Reserves in the watershed and established guidelines under which they should be treated. (Cottage Grove Lake/Big River Watershed Analysis, Chapter 4, pages 4-6.)

The plants and animals in this project area do not differ significantly from those discussed in the Eugene District Resource Management Plan/Environmental Impact Statement (RMP EIS) (Chapter 3). The following resources are also discussed in greater detail in the project file.

B. SPECIFIC RESOURCE DESCRIPTIONS

Vegetation

Most forest stands in the Upper Coast Fork Willamette Watershed are currently in early- or mid-seral stages. Of the entire watershed, approximately 25% (24,400 acres) is BLM and of the federal forested land, approximately 15% (3,660 acres) is in late-successional forest. Of this 15%, 85% (3,100 acres) is in a reserve land use allocation. Approximately 1% of the sixth field watershed (Hobart Creek) and 4% of the entire watershed is late-successional forest.

There are recent clearcuts on privately owned industrial forest lands to the west and north of the project area. To the south of the project area on BLM land are stands of timber younger and less dense than the project area.

The project area is composed of several stands, most of which regenerated from natural seeding after logging in the late 1940's and early 1950's. The common stand condition is a well-stocked Douglas-fir overstory with scattered grand fir and occasional incense cedar, western redcedar, western hemlock, and bigleaf maple. The average diameter is approximately 15 inches. Average age is 46 years. There are approximately 165 TPA. These stands are approaching a level of competition at which suppression mortality occurs. Conifer regeneration is sparse. *The stands proposed for light thinning are ten years younger and contain smaller diameter trees than the other stands proposed for treatment.* Snags are generally sparse but are found in larger size classes in the root rot areas. Coarse woody debris is well distributed at generally low to moderate density and is mainly of decay classes 3-5. Understory vegetation is dominated by salal, swordfern, and Oregon-grape.

The reserve area that would be crossed by Spur F was clearcut and then planted in 1968 due to inadequate natural stocking. Older trees are approximately 12 inches diameter at breast height, with a younger cohort of unmerchantable trees. No treatment of this stand is recommended at this time.

The project area is within Connectivity/Diversity Blocks 232-38 and 232-41 of the Matrix Land Use Allocation. The Riparian Reserves, along with three areas of larger timber estimated to be greater than 80 years old, would be part of the 25-30% of the Connectivity/Diversity Block that is to be managed for late-successional forest characteristics.

Wildlife (including Special Status and Special Attention Species)

The project area is located within spotted owl critical habitat unit (CHU) OR-23. According to the U. S. Fish & Wildlife Service (Critical Habitat Units Narratives, U.S. Fish and Wildlife Service, unpublished), OR-23 consists of essential nesting, foraging, roosting, and dispersal habitat. OR-23 is a primary supporting "stepping stone" of owl habitat within the South Willamette-North Umpqua area of concern (an area providing inter-provincial linkage between the Coast Range and Western Cascades). The Service identified the area of concern as one of

the areas where due to past harvest practices, current habitat conditions, and land ownership patterns, the importance of maintaining habitat for owls to nest in and move between provinces has escalated. OR-23 contains 8,769 acres of BLM land straddling both the Eugene and Roseburg districts within two watersheds. The majority of the CHU, 48%, is in young plantations, 38% of the CHU is dispersal age, and only 14% is late-successional forest. Three historic owl sites exist within the CHU; however, one appears to be no longer active. This CHU is not within a Late Successional Reserve.

The Proposed Action is not located within the provincial home range (1.2 miles) of any spotted owl site. However, there are two owl sites between 1.5 to 2 miles away; one is on the Roseburg District and the other is on the Eugene District. The project area could provide foraging habitat for these two sites and provides dispersal habitat for non-resident spotted owls seeking a territory.

Two patches of late-successional forest are located within the stand. The late-successional forest patches act as refugia and provide the habitat characteristics needed by some late-successional forest species that are then able to use more of the stand. Bird species that reside within late-successional forest habitat are found within the stand; birds observed include pileated woodpecker, gray jay, chestnut-backed chickadee, red-breasted nuthatch, winter wren, and varied thrush. The stand has the habitat to support small mammal species such as flying squirrels, woodrats, red-backed voles, and red tree voles (a Survey and Manage species).

Red tree vole surveys have been completed. Eight active and 12 inactive nests were found within the project area.

Mollusk surveys conducted to protocol in the Spring of 1999 found 54 Oregon megomphix (*Megomphix hemphilli*), 11 blue gray tail-droppers (*Prophysaon coeruleum*), and four Papillose tail-droppers (*Prophysaon dubium*). Under the Survey and Manage Record of Decision (S&M ROD), the *P. coeruleum* and *P. dubium* were removed from the Survey and Manage list of species. As a result of the S&M ROD, neither pre-disturbance surveys nor management of known sites for these two species are required. The *Megomphix hemphilli* is still a Category F species, which requires management of all sites known prior to September 30, 1999. All known *Megomphix* sites will be managed according to current management recommendations.

Red-legged frogs, a Bureau Sensitive amphibian, were observed at the pooled area where Road No. 22-4-25.1 passes below Spring 2.

Aquatic and Riparian Resources and Fisheries

The elevations in the project area range from approximately 1,100 to 2,100 feet. The majority of the project area is at elevations considered lowland (less than 1,500 feet) which would be expected to experience rain-on-snow events very infrequently. Approximately 40% of the project area is in the rain-dominated zone which could occasionally experience rain-on-snow events. Slopes are gentle to moderate except on the northern flank of Hobart Butte, which is moderately steep to steep.

Springs 2, 10, and 25 and seeps 5, 9, and 24 are located within the project area. Twenty-two streams were identified within or adjacent to the proposed harvest area. The major streams are 6, 13, and 19, which drain east to northeast to the Coast Fork of the Willamette River. All other streams (3, 4, 7, 8, 11-12, 14-18, 20-23, and 26-30) drain to Streams 6, 13, or 19.

Tractor skid roads from a previous entry have disrupted or diverted flow on features 2, 4, 12, 14, 15 and 25. Some areas are compacted from skid roads used in a previous entry. A low spot on Road No. 22-4-25.1 "pools" water intermittently (perhaps perennially) and has been identified as reg-legged frog habitat. The pooling of water at this location appears to be caused by the man-made dip in the road in relation to Spring 2.

The closest beneficial use is irrigation on Stream 19 (3/4 mile downstream) and Stream 13 (less than 1/2 mile downstream).

The project area is located in the Upper Coast Fork Willamette River Watershed above the Cottage Grove Dam. The dam facility does not allow upstream fish passage for anadromous fish species, therefore, the upper limit of migration for spring-run chinook and winter-run steelhead, which are currently listed species under the Endangered Species Act, is below the Cottage Grove Dam.

There are two fish bearing streams located within the project area: Hobart Creek (Stream 19) located in the southeast portion of Section 25, T.22S., R.4W., and Hambrick Creek (Stream 13) located in the southeast portion of Section 31, T.22S., R.4W. Both streams provide habitat predominately for cutthroat trout (*Oncorhynchus clarki*) within and near the project area, with, potentially, rainbow trout (*Oncorhynchus mykiss*) and sculpin (Cottidae spp.) inhabiting the lower portion of each reach. A presence/absence survey (October 1998) of both stream systems documented a small/moderate size population of cutthroat trout, numerous pacific giant salamander (*Dicamptodon ensatus*), roughskin newt (*Taricha granulosa*) and various other unidentified salamanders. All other stream reaches in or near the project area are non-fish bearing due to insufficient flow and lack of habitat, or too steep for fish to migrate.

Hobart and Hambrick Creek have similar habitat and geomorphic features. They are both third order streams. Habitat is predominately cascades, riffles and small to moderately sized pools. Pools tend to be shallow and lack complexity. Substrate varies from boulders, sand/silt, gravel, cobble, and a small amount of bedrock. Large wood is generally limited and in the later stages of decay; however, there are pockets of instream large wood which are functioning to create some preferred fish habitat. Portions of both channels have been downcut 1-1-1/2 feet and have low to moderate amounts of streambank erosion. Both channels are well shaded with second growth conifers and hardwoods, therefore, water temperature is not anticipated to be a problem at the project level.

Most of the riparian areas in Hobart and Hambrick Creek drainages were logged during the 1950's and 1960's. Also during this period, stream cleaning (removal of large and small wood from the channel) was a common management practice in conjunction with timber harvesting. From field observations, it is speculated that stream cleaning was implemented within these drainages in conjunction with timber harvesting in riparian areas. Both systems currently lack sufficient instream large woody debris structure to provide quality habitat for fish and other aquatic-dependent species.

Within the project area, no human caused barriers to upstream fish migration were observed within Hobart or Hambrick Creeks. However, old road/stream crossings with log culverts or just fill material over the channels still exist on some non-fish bearing tributaries in the Hobart Creek drainage. These old road crossings, if they were to fail, would create a significant source of sedimentation to downstream fish habitat. In the past, old road crossings existed on the mainstem of Hobart Creek, but have since failed and the stream has reclaimed its channel. However, bank erosion associated with these failed crossings continues to be a chronic source of sedimentation to downstream fish habitat.

The primary limiting factors for fish production for both stream systems are the lack of adult and juvenile rearing habitat and spawning habitat. These stream systems lack large woody debris, which is a key element for the development of large and deep complex pools, cover, or refuge for fish and sustains essential spawning gravels over time. In addition, spawning gravel embeddedness may be a problem due to fine sediment loading from old road/stream crossing failures.

Botany

No Threatened or Endangered plant species were found in the proposed harvest area.

There is a major infestation of Scotchbroom under a Bonneville Power Administration (BPA) powerline in the area where Sections 25 and 31 meet. BPA has recently mowed the scotchbroom but in the past has allowed it to grow and flower. Scotchbroom seedlings are spreading out from this area with seedlings found along the eastern and southern edges of Section 25 and the northern and western edges of Section 31. Both of these infestations have invaded the edges of the proposed harvest area, with a few seedlings 40 feet into the area.

V. DIRECT AND INDIRECT EFFECTS

The Proposed Action and alternatives would have environmental effects. However, none of the alternatives would have effects beyond those described in the RMP EIS and the NSO FSEIS. Impacts based upon site specific analysis of the alternatives are described below.

A. UNAFFECTED RESOURCES

The following resources are either not present or would not be affected by any of the alternatives: Areas of Critical Environmental Concern, prime or unique farm lands, Native American religious concerns, solid or hazardous wastes, Wild and Scenic Rivers, Wilderness, minority populations, low income populations, and energy resources.

B. ISSUE 1: ACS Objectives

1. PROPOSED ACTION - Density Management/Riparian Reserve Treatment

The Proposed Action includes management within Riparian Reserves that promotes attainment of ACS objectives. Site-specific conditions in this project area are consistent with the general discussion in the Cottage Grove Lake/Big River Watershed analysis, which identified management opportunities for projects in Riparian Reserves. That analysis specifically addressed density management treatments in stands where thinning would promote faster development of large trees with fuller crowns, and dropping trees on site to increase the large woody debris immediately available to the riparian system. (Cottage Grove Lake/Big River Watershed Analysis, Chapter 4, pages 4-5). The following is a site-specific analysis of the effect of the Proposed Action on attainment of the ACS objectives:

Objective 1: The Proposed Action would contribute to the restoration of the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted. Treatment of the outer 100 feet of the Riparian Reserves would hasten the development of late-successional structural characteristics in the residual stand, such as larger diameter trees and canopy layering, by lessening competition.

Objective 2: The management activities in the Riparian Reserves would maintain spatial and temporal connectivity within and between watersheds because of the influence of the residual stand and the untreated portions of Riparian Reserves. New road construction would not alter the existing drainage network because there would be no new stream crossings. The existing physical and chemical routes would be maintained.

Objective 3: The Proposed Action would maintain and contribute to the restoration of the physical integrity of the aquatic systems because the untreated portions of Riparian Reserves would ensure that thinning would not affect streambank integrity and would maintain tree/shrub root strength; and management activities throughout the project area would be unlikely to cause any alteration in water flows that could affect channel morphology. Thinning within the Riparian Reserves would speed the development of large diameter trees, resulting in the potential benefit of developing larger trees sooner for large woody debris recruitment. Fish habitat enhancement activity would create an immediate supply of large woody debris, eventually forming gravel deposits for spawning, deep and complex pools, backwater and off-channel habitat, and benefitting the sediment and flow regimes to these streams.

Objective 4: The Proposed Action would maintain water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. The Proposed Action is unlikely to alter stream temperature because the untreated portions of Riparian Reserves adjacent to the hydrological features would maintain existing shading of streams. Retention trees would further minimize alteration of existing shade. There is a low risk of hazardous materials spills (petroleum products) during the operations. The risk of hazardous materials reaching

a hydrologic feature would be very low since standard precautions and procedures would be implemented.

Objective 5: The Proposed Action would maintain and contribute to the restoration of the sediment regime under which this aquatic ecosystem evolved. The probability of sediments reaching the streams from yarding or newly constructed roads is unlikely due to the yarding BMPs (slope, moisture, and areal restrictions); distance between new construction and hydrological features; the design features such as outsloping new roads, building to minimum size, blocking, waterbarring, and subsoiling; and the temporary nature of the new roads. Trees felled into or near stream channels would create an immediate supply of large woody debris, and thinning in Riparian Reserves would speed the development of a future supply of larger woody debris. The immediate and future supply of woody debris to the streams would also help restore the sediment regime.

The use of existing roads for timber haul could produce an increase in sedimentation during hauling because the existing roads route sediment/flow via ditch lines to cross drains and stream crossings. Some surface erosion occurs from nearly all roads. The amount of sediments and the impact are expected to be low.

Objective 6: The Proposed Action may contribute to an increase in peak flows, summer low flows, and overall water yield because of the removal of trees and the resulting reduction in evapotranspiration and interception. Any impact is likely to be low because of the high percentage of retained vegetation. New roads are unlikely to extend the length of drainage networks because of the design features described above.

Most of the proposed harvest area is at elevations that are usually too low for snow accumulation associated with rain-on-snow events. Approximately 1 acre of compaction from existing tractor skid trails and 1.5 acres from existing roads would be ameliorated under this action through subsoiling. Approximately 1.5 acres may be temporarily compacted from newly constructed roads and landings. Impacts from yarding would be mitigated through the Best Management Practices of the RMP.

Objective 7: The Proposed Action would maintain existing patterns of floodplain inundation and water table elevation because it would have little effect on existing flow patterns and stream channel conditions. Much of the vegetative cover of the project area would be retained. Riparian vegetation would remain undisturbed.

Alteration of the existing situation on Road No. 22-4-25.1 poses a risk that the pooling of water on the road may not function identically to the current situation after operations are completed. The extent to which the existing road prism can be mimicked post operations would determine the level of success in maintaining existing conditions at this location.

Objective 8: The Proposed Action would contribute to the restoration of the species composition and structural diversity of plant communities in the riparian zone by speeding the development of large trees and layered understory canopies within the Riparian Reserves. The Proposed Action would cause a reduction in canopy closure for 10-20 years in the thinned areas, which could result in some micro-climatic alteration, non-native plant colonization, or other adverse effects for species that prefer complete canopy closure or that do not tolerate disturbance. Any such effect would be buffered by the effect of the residual trees and nearby untreated reserve areas.

The Fish Habitat Enhancement proposal would create an immediate supply of large woody debris within the stream, and thinning in Riparian Reserves would speed the development of a future supply of large woody debris, which would maintain and contribute to the restoration of the physical complexity of the aquatic system.

Objective 9: The Proposed Action would contribute to the restoration of habitat to support well-distributed populations of some riparian-dependent species by providing an immediate supply of woody debris to the streams. This would help restore the deposition of spawning

gravels and the formation of deep and complex pools and back-water and off-channel aquatic habitat.

Renovation of Road No. 22-4-25.1 would result in some short-term impacts to the pond and associated species, including red-legged frogs. Some degradation and shrinkage of the pond is expected during construction and hauling on the road. However, once the project is completed, the pond and associated riparian vegetation are expected to return to pre-construction conditions. Some displacement and/or mortality of red-legged frogs are anticipated during construction and hauling. However, these activities would be conducted during the dry season when tadpoles have matured and the frogs are least vulnerable to disturbance from traffic and habitat modification. The frog population is expected to recover once the project is completed and habitat conditions stabilize.

Based on the above analysis of the effect on attainment of the ACS objectives, the Proposed Action is consistent with the ACS and the objectives for the Riparian Reserves, and would hasten attainment of ACS objectives 1, 3, 5, 8 and 9.

2. ALTERNATIVE A - Density Management/Riparian Reserve Treatment with Scotchbroom Buffer

Alternative A includes the same management actions within Riparian Reserves and Matrix as the Proposed Action, except for a scotchbroom buffer in Matrix. Impacts to the ACS objectives would be almost identical to the Proposed Action. Approximately 2 acres that would be treated with the Proposed Action would not be treated with Alternative A. This represents less than 1% change in area harvested. It is unlikely that this minor difference would cause any appreciable difference in impacts to the ACS objectives from those described for the Proposed Action.

3. ALTERNATIVE B - Density Management

Alternative B would include no management action within Riparian Reserves. Impacts to ACS objectives 2, 4, and 7 are expected to be very similar to the Proposed Action. The following is a site-specific analysis of the effect of Alternative B on attainment of ACS objectives 1, 3, 5, 6, 8, and 9.

Objective 1: Alternative B would not prevent or retard restoration of the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted. This alternative would not have the benefit of treatment of the outer 100 feet of the Riparian Reserves; the development of late-successional structural characteristics in the residual stand would be slower than with the Proposed Action.

Objective 3: Alternative B would maintain the physical integrity of the aquatic systems because the Riparian Reserves would maintain streambank integrity and root strength and would filter potential sediments before they reach the streams. Alternative B would not have the benefit of larger trees sooner for large woody debris recruitment that would result from thinning within the Riparian Reserves, nor the benefit of an immediate supply of large woody debris from the fish habitat enhancement project and the resulting spawning gravel deposits, deep/complex pools, and backwater and off-channel habitat.

Objective 5: Alternative B's effects on Objective 5 would be similar to the Proposed Action, except that there could be a slightly lower risk of sedimentation from harvesting activities under this alternative versus the Proposed Action because of the greater distance of management activities from streams. Change in traffic levels would be very similar to the Proposed Action and the identical haul route would be utilized. Risk of sedimentation from the transportation of logs under this alternative would be very similar to the Proposed Action. This alternative would not have the added benefit of an immediate pulse of large woody debris into the streams, which would help maintain the sediment regime.

Objective 6: Alternative B may result in slightly lower impacts on evaporation and interception when compared to the Proposed Action. Changes in timing and magnitude of flows would be expected to be similar to slightly lower than the Proposed Action or Alternative A.

Objective 8: Alternative B would maintain the species composition and structural diversity of plant communities in the riparian zone.

There would be no thinning in Riparian Reserves to speed the development of a future supply of large woody debris, and there would be no trees felled for large woody debris into or near stream channels to help restore physical complexity as there would be with the Proposed Action and Alternative A.

Objective 9: Alternative B would not have the benefit of an immediate supply of large woody debris within the Riparian Reserve. Other effects on Objective 9 would be similar to the Proposed Action.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative B is consistent with the ACS and the objectives for the Riparian Reserves, but would delay attainment of ACS objectives 1, 3, 5, 8 and 9 relative to the Proposed Action.

4. ALTERNATIVE C - No New Road Construction

Alternative C would include density management within approximately 5 acres of Riparian Reserves and fish habitat enhancement activities as described in the Proposed Action. Impacts to ACS objectives 2 and 4 are expected to be very similar to the Proposed Action. The following is a site-specific analysis of the effect of Alternative C on attainment of ACS objectives 1, 3, 5, 6, 7, 8, and 9.

Objective 1: Alternative C would not prevent or retard restoration of the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted. This alternative would have the benefit of treatment of 5 acres of Riparian Reserves, whereas the Proposed Action would have the benefit of treatment of 10 acres of Riparian Reserves, and Alternative B on 0 acres.

Objective 3: Alternative C would maintain the physical integrity of the aquatic systems because the Riparian Reserves would maintain streambank integrity and root strength and would filter potential sediments before they reach the streams. Alternative C would have the benefit of larger trees sooner for large woody debris recruitment on 5 acres, while the Proposed Action would have this benefit on 10 acres and Alternative B on 0 acres.

Objective 5: Alternative C's effects would be similar to the Proposed Action. There could be a slightly lower risk of sedimentation from harvesting activities under this alternative versus the Proposed Action and Alternative A because of less activity within Riparian Reserves, but a slightly higher risk of sedimentation than Alternative B because of more activity within Riparian Reserves. Change in traffic levels would be less than any of the other action alternatives because this alternative proposes harvest of the least amount of acreage. Risk of sedimentation from the transportation of logs under this alternative would be less than the other action alternatives.

Objective 6: Alternative C may result in slightly lower impacts on evaporation and interception when compared to the Proposed Action, Alternative A and Alternative B. Changes in timing and magnitude of flows would be expected to be similar to slightly lower than the Proposed Action, Alternative A or Alternative B.

Objective 7: Alternative C would maintain existing patterns of floodplain inundation and water table elevation because it would have little effect on existing flow patterns and stream

channel conditions. Much of the vegetative cover of the project area would be retained. Riparian vegetation would remain undisturbed.

The existing situation on Road No. 22-4-25.1 at Spring 2 would not be altered as this road would not be renovated or decommissioned.

Objective 8: Alternative C would maintain the species composition and structural diversity of plant communities in the riparian zone. Five acres of Riparian Reserves would be thinned to speed the development of a future supply of large woody debris, and trees would be felled for large woody debris into or near stream channels to help restore physical complexity as with the Proposed Action and Alternative A.

Objective 9: Alternative C would have no short-term effects on red-legged frogs as would occur with the other action alternatives. Other effects on Objective 9 would be similar to the Proposed Action.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative C is consistent with the ACS and the objectives for the Riparian Reserves, but would delay attainment of ACS objectives 1, 3, and 8 relative to the Proposed Action.

5. ALTERNATIVE D - No action

Alternative D includes no management within Riparian Reserves. Alternative D would maintain current existing conditions. Alternative D would not affect attainment of Objectives 2, 4, 5, 6, and 7. Riparian conditions would continue to respond to existing processes, with some recovery of aquatic habitat expected over time.

Objective 1: Alternative D would not hasten the development of late-successional characteristics in the Riparian Reserves as the Proposed Action and Alternative A would. Recovery of fish bearing habitat is expected to proceed at a substantially slower rate than with one of these action alternatives.

Objective 3: Alternative D would not speed the development of large diameter trees for large woody debris recruitment, nor would it provide a pulse of large woody debris felled into the streams to contribute to spawning gravel deposition, formation of deep/complex pools, and backwater and off-channel habitat.

Objective 8: Alternative D would not have the immediate supply of large woody debris felled into the streams to contribute to the restoration of the physical complexity of the system that would occur with the Proposed Action or Alternative A.

Objective 9: Alternative D would not have the benefit of an immediate supply of woody debris to the streams to help restore the deposition of spawning gravels and the formation of deep pools, back-water and off-channel aquatic habitat that would occur with the Proposed Action or Alternative A.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative D is consistent with the ACS and the objectives for the Riparian Reserves, but would delay attainment of ACS objectives 1, 3, 8 and 9 relative to the Proposed Action.

C. ISSUE 2: Effects on Spotted Owl Critical Habitat

1. PROPOSED ACTION - Density Management/Riparian Reserve Treatment

The Proposed Action may affect critical habitat. Dispersal habitat for spotted owls is limited in the CHU and is barely adequate at 52%. The prescription would keep canopy closure above 40%, maintaining dispersal habitat. However, approximately 210 acres of the 480 acre project area would be degraded because the canopy would be opened. The Proposed Action would remove potential foraging habitat by opening up the canopy, possibly felling snags that are considered to be dangerous, and possibly disturbing the downed wood.

Research has shown that spotted owls avoid foraging in thinned stands immediately after harvest (Anthony, et al. 2001). As the stand grows and the canopy closes (approximately 10-20 years), potential foraging habitat on the 210 treated acres would improve. Accelerating the development of late-successional stand characteristics as a result of the density management thin would ultimately benefit this species and improve critical habitat. The Proposed Action may affect but is not likely to adversely affect northern spotted owls.

2. ALTERNATIVE A - Density Management/Riparian Reserve Treatment with Scotchbroom Buffer

Impacts from Alternative A would not be noticeably different than from the Proposed Action. Alternative A may affect but is not likely to adversely affect northern spotted owls.

3. ALTERNATIVE B - Density Management

Alternative B may affect critical habitat. However, the effects would be less than those from the Proposed Action or Alternative A because 10 fewer acres would be treated. The untreated Riparian Reserves would sustain dispersal habitat in its present condition. By not treating the Riparian Reserves, more of the stand would remain available for foraging by owls from nearby sites. Alternative B may affect but is not likely to adversely affect northern spotted owls.

4. ALTERNATIVE C - No New Road Construction

Alternative C may affect critical habitat. However, the effects would be less than those from the other action alternatives because only 55 acres would be treated. The untreated acreage would sustain dispersal habitat in its present condition, and more of the stand would remain available for foraging by owls from nearby sites. However, less of the stand would have accelerated development of late-successional stand characteristics as a result of the density management action. Alternative C may affect but is not likely to adversely affect northern spotted owls.

5. ALTERNATIVE D - No action

Critical habitat would not be affected either negatively within the first 20 years or positively as the forest stand developed late-successional forest characteristics. Dispersal habitat would not be degraded and foraging habitat would be maintained. The forest stand, however, would not be expected to develop late-successional forest characteristics, including large trees, as quickly or to the same extent as it would under the action alternatives. Northern spotted owls would not be affected.

D. ISSUE 3: Effects on the Spread of Scotchbroom

1. PROPOSED ACTION - Density Management/Riparian Reserve Treatment

Density management would increase light levels and cause disturbance of the top soil, increasing the likelihood of scotchbroom entering the unit and allowing flowering of scotchbroom already in the proposed harvest area. Scotchbroom needs a minimum of 40% sunlight to produce flowers (Bossard, 1996). The Proposed Action could increase light levels to 40% in the treated areas. Along the edge of the proposed harvest area in the scotchbroom infestation area near the BPA powerline, the light level would stay consistent (40%) until the adjacent clearcuts attain canopy closure. This would allow for expansion of the seed bank along the infested edge. Seeds can shoot out from the parent plant approximately 16 feet and can remain viable for more than 50 years. The number of plants along the edge of the proposed harvest area would increase due to these natural factors.

Road building could potentially introduce seed into uninfested areas. However, measures such as pushing the first 50 feet of soil out of the proposed harvest area when pioneering

Road No. 22-4-25.1, and washing road construction equipment prior to moving into the uninfested portion of the project area, would help to mitigate effects.

2. ALTERNATIVE A - Density Management/Riparian Reserve Treatment with Scotchbroom Buffer

The 50-foot no-harvest scotchbroom buffer would minimize the potential spread of scotchbroom by: (1) not allowing soil disturbance; (2) not creating potential germination spots for scotchbroom; and (3) maintaining the light level at existing conditions. This would limit the potential for increasing the long-lived scotchbroom seedbank and the spread of scotchbroom.

3. ALTERNATIVE B - Density Management

The effects of Alternative B would be similar to the Proposed Action because the same road system would be used.

4. ALTERNATIVE C - No New Road Construction

The effects of Alternative C would have no effect on the spread of scotchbroom in the project area because the portion of the project area adjacent to the BPA powerline would not be harvested. Road building from the BPA powerline area would not take place.

5. ALTERNATIVE D - No action

Alternative D would have no effect on the spread of scotchbroom in the project area because no treatment activities would occur.

E. CUMULATIVE EFFECTS

This analysis incorporates by reference the analysis of cumulative effects in the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (NSO FSEIS) (Chapter 3 & 4, pp. 4-10) and the RMP EIS (Chapter 4). Those documents analyze most cumulative effects of timber harvest and other related management activities. None of the alternatives analyzed here would have cumulative effects on soils or air quality beyond those effects analyzed in the above documents. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

It is likely that other stands on BLM-administered lands in the Cottage Grove Lake/Big River Watershed would be treated with density management or regeneration harvests within the next five years, given that the sections to the north, south and immediate east are Connectivity. The BLM-managed sections in the watershed beginning approximately 4 miles to the east are LSR. Timber sales that have occurred within the past 5 years in the watershed include Black Butte Thinning (23-3-9, completed in 1998) and Cedar Creek Thinning (21-4-35, completed in 1999).

On private lands in the watershed, more intensive timber management actions, including clearcutting and broadcast burning, are occurring and are likely to continue. Also, it is possible that some forest stands on private land will be converted to non-forest land, for either agricultural or residential use. Private lands provide habitat for deer, elk, and neotropical birds but would primarily alternate between early- to mid-seral stages.

In the short term (approximately 10-40 years), the Proposed Action, Alternative A, B or C and other harvest activities would contribute to the degradation or elimination of spotted owl habitat within CHU OR-23. OR-23 is approximately 17,800 acres in size covering approximately 8,800 acres of federal ownership. The BLM ownership comprises 1,260 acres of suitable spotted owl habitat, 3,290 acres of dispersal/foraging habitat, and 4,180 acres of young stands. The

Proposed Action would degrade 210 acres (6.3%) of the dispersal habitat on BLM within the CHU; Alternative A, 208 acres (6.2%); Alternative B, 200 acres (6%), and Alternative C, 55 acres (1.7%). In the long-term (40 plus years) the Proposed Action, Alternative A, B or C could accelerate the development of mature and late-successional forest characteristics in CHU OR-23, thereby improving critical habitat. The USFWS has determined that the Proposed Action, together with other habitat modification projects planned for Fiscal Year 2003 in the Willamette Province, is "not likely to jeopardize the continued existence of the spotted owl and is not likely to destroy or adversely modify critical habitat for the spotted owl.

The Proposed Action or Alternative A, B or C, together with other federal harvests, is not expected to pose a risk to local viability or distribution of the *Megomphix* mollusk species because sites would be protected in Riparian Reserves and through the management recommendations. Private harvests most likely would not contribute to population viability due to the low amount of downed wood left and the size of the riparian buffers.

The Proposed Action or Alternative A, B, or C, together with other harvesting, could cause a minor increase in water flows and overall water yield within the watershed.

Alternative D would not add to the cumulative effects of other harvests in the area.

VI. CONSULTATION AND COORDINATION

A. LIST OF PREPARERS

The Proposed Action and alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists.

Jeff Apel	Engineering
Carla Alford	Wildlife
Karin Baitis	Soils
Alison Center	Threatened and Endangered Wildlife Species
Alan Corbin	Timber Management
Richard Hardt	Ecology
Pete O'Toole	Silviculture
Mike Southard	Cultural Resources
Steve Steiner	Hydrology
Chuck Vostal	Fisheries
Chuck Fairchild	Botany
Barry Williams	Soils

B. CONSULTATION

Pursuant to the Endangered Species Act, formal consultation for spotted owls and spotted owl critical habitat has been completed with the U.S. Fish and Wildlife Service (USFWS) on this Proposed Action, along with other actions proposed in the Eugene District for Fiscal Year 2003. The USFWS issued its Biological Opinion on February 27, 2003, completing consultation.

No candidate, proposed, or listed threatened and endangered fish species under the Endangered Species Act exist in the Big River/Cottage Grove Lake Watershed. Consultation with the National Marine Fisheries Service or USFWS is not necessary.

The Confederated Tribes of the Siletz and the Confederated Tribes of the Grand Ronde were notified of this project during the scoping process, requesting information regarding tribal issues or concerns relative to the project. No response was received.

C. PUBLIC PARTICIPATION

A public notice advertising the availability of this EA and preliminary FONSI was published in the Eugene Register-Guard on September 4, 2002. Additionally, the environmental assessment was sent to eight groups or businesses, six state or local government agencies, and 11 individuals. A 30-day public comment period for the EA closed on October 4, 2002. One email comment letter, from Oregon Natural Resources Council (ONRC), was received. The paragraphs below summarize specific comments of ONRC and the response to their comments.

Comment: We would like to see more tree-to-tree variability with the prescriptions.

Response: Spacing between retention trees would be varied to reserve the largest trees (EA, pg 4). While this prescription would not result in large gaps and openings, it is consistent with the state purpose for the action, which is to provide a sustainable flow of forest products and improve stand vigor to accelerate diameter growth (EA, pg 1).

Comment: We would like to see the ACS analysis broken down so that the effects of road building are considered separately instead of the proposed action as a whole.

Response: In the ACS analysis for each alternative, road construction is specifically mentioned when it would have a potential effect on attainment of ACS objectives. A conclusion that any particular alternative is consistent with ACS objectives could not be made if road construction adversely affected attainment of the objectives.

Comment: Spotted owl dispersal habitat is limited here. Some of the moderate thinning should be converted to light thinning to maintain better dispersal habitat.

Response: The proposed light thinning area contains stands that are ten years younger and have smaller diameter trees than the proposed moderate thinning area. The EA has been modified to reflect this difference (see italicized text, pg. 7). Both prescriptions retain approximately 130 square feet of basal area. Both stands would continue to provide dispersal habitat. There is no indication that dispersal habitat would be of higher quality in the light thinning area than in the moderate thinning area.

VII. REFERENCES

USDA Forest Service and USDI Bureau of Land Management. February 1994. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, Oregon.

USDA Forest Service and USDI Bureau of Land Management. April 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl.

USDI Bureau of Land Management. November 1994. Eugene District Resource Management Plan/Environmental Impact Statement. Eugene, Oregon: Eugene District Office.

USDI Bureau of Land Management. June 1994. Eugene District Record of Decision and Resource Management Plan. Eugene, Oregon: Eugene District Office.

USDI Bureau of Land Management. May 1997. Cottage Grove Lake/Big River Watershed Analysis. Eugene, Oregon: Eugene District Office.

Bossard, Carla. April 1996. Distribution, dispersal and control of invasive woody legumes in California forests. Presentation given at the International Broom Symposium. Portland Oregon.

USDA Forest Service and USDI Bureau of Land Management. October 1998. Environmental Assessment To Change the Implementation Schedule for Survey and Manage and Protection Buffer Species. Portland, Oregon.

Anthony, Robert G.; Michael C. Hansen; Keith Swindle; and Amy Ellingson. 2001. Effects of forest stand manipulations on spotted owl home range and habitat use patterns: a case study. Report to the Oregon Department of Forestry. Salem, OR: Oregon Cooperative Fish and Wildlife Research Unit, Oregon State University.

Management Recommendations for the Oregon Red Tree Vole, *Arborimus longicaudus*, Version 2.0. 2000. U. S. Dept. of Agriculture, Forest Service: U. S. Dept. of the Interior, Bureau of Land Management and Fish and Wildlife Service.

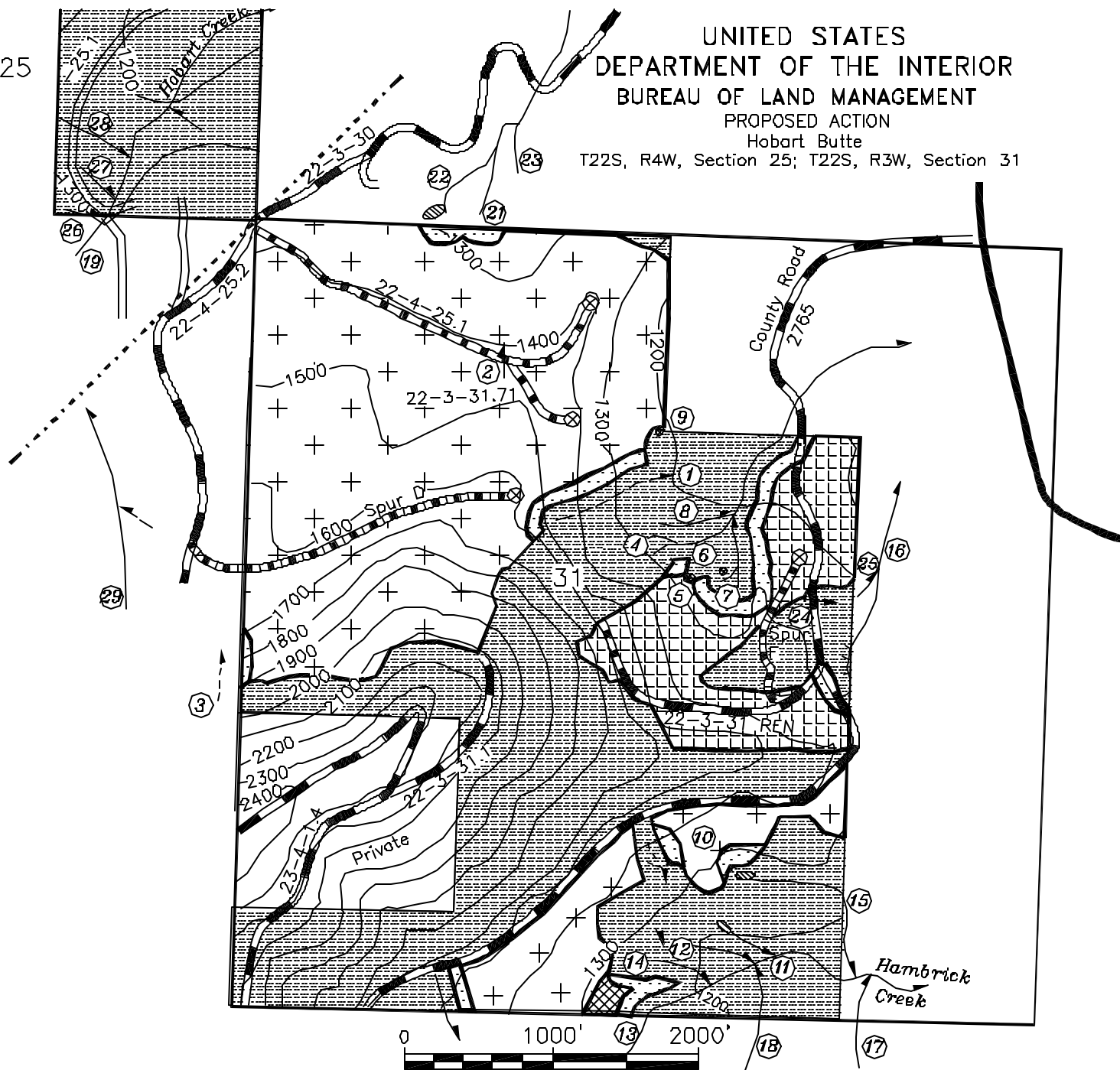
25

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PROPOSED ACTION

Hobart Butte

T22S, R4W, Section 25; T22S, R3W, Section 31



SCALE
LEGEND

- MATRIX (Moderate Thin)
- MATRIX (Light Thin)
- RIPARIAN RESERVE (100-200 FOOT AREA - Heavy Thin)
- RIPARIAN RESERVE (200-400 FOOT AREA - Retain Same as Adjacent Matrix Uplands)
- RESERVE AREA

- ROAD TO BE CONSTRUCTED
- ROAD TO BE IMPROVED
- ROCK SURFACED ROAD
- PAVED ROAD
- DIRT ROAD
- BPA POWERLINE
- STREAM

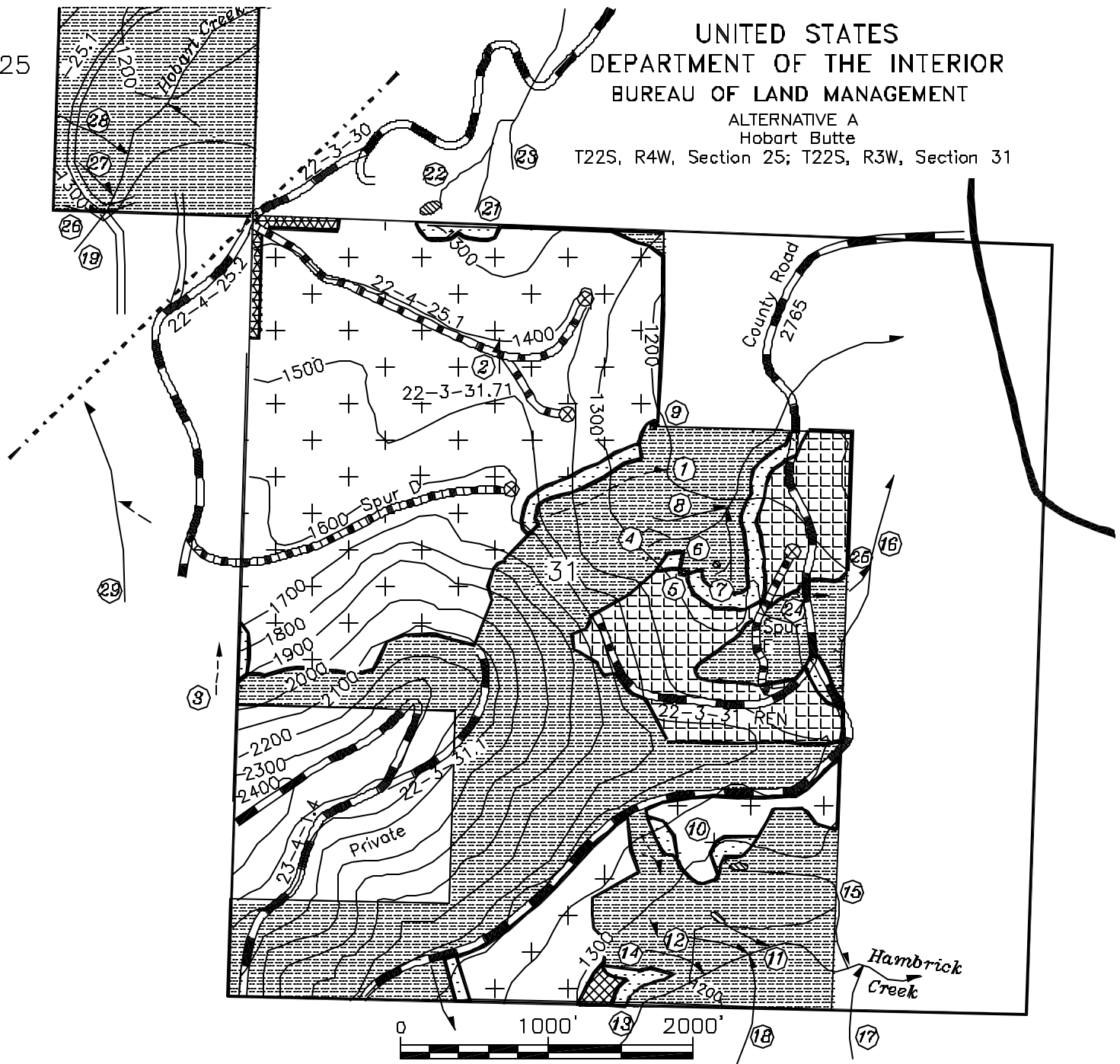
7/22/02

25

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ALTERNATIVE A
Hobart Butte

T22S, R4W, Section 25; T22S, R3W, Section 31



SCALE
LEGEND

- MATRIX (Moderate Thin)
- MATRIX (Light Thin)
- RIPARIAN RESERVE (100-200 FOOT AREA - Heavy Thin)
- RIPARIAN RESERVE (200-400 FOOT AREA - Retain Same as Adjacent Matrix Uplands)
- RESERVE AREA

- ROAD TO BE CONSTRUCTED
- ROAD TO BE IMPROVED
- ROCK SURFACED ROAD
- PAVED ROAD
- DIRT ROAD
- BPA POWERLINE
- SCOTCHBROOM BUFFER
- STREAM

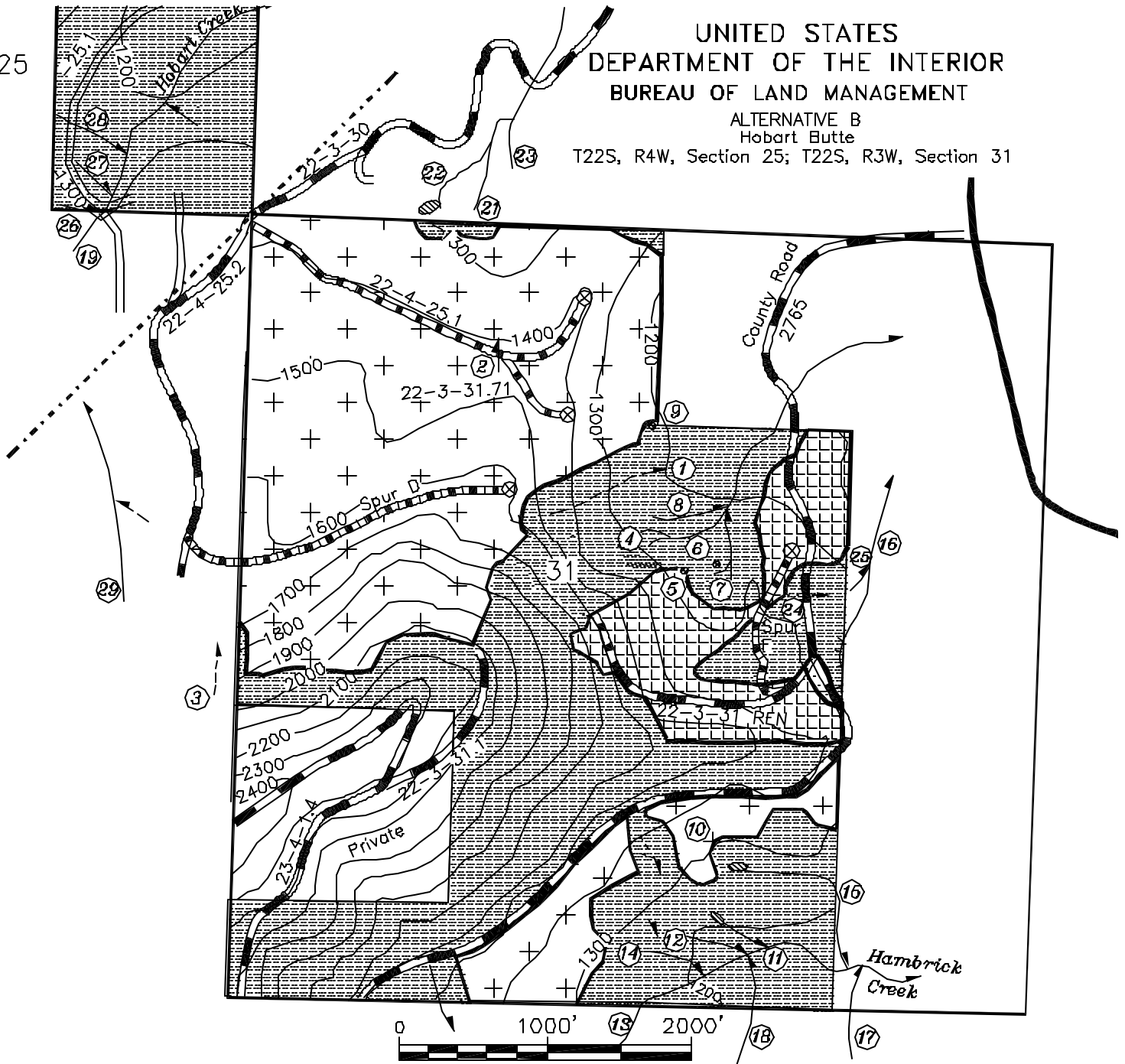
7/22/02

25

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ALTERNATIVE B
Hobart Butte

T22S, R4W, Section 25; T22S, R3W, Section 31



SCALE
LEGEND

- MATRIX (Moderate Thin)
- MATRIX (Light Thin)
- RESERVE AREA

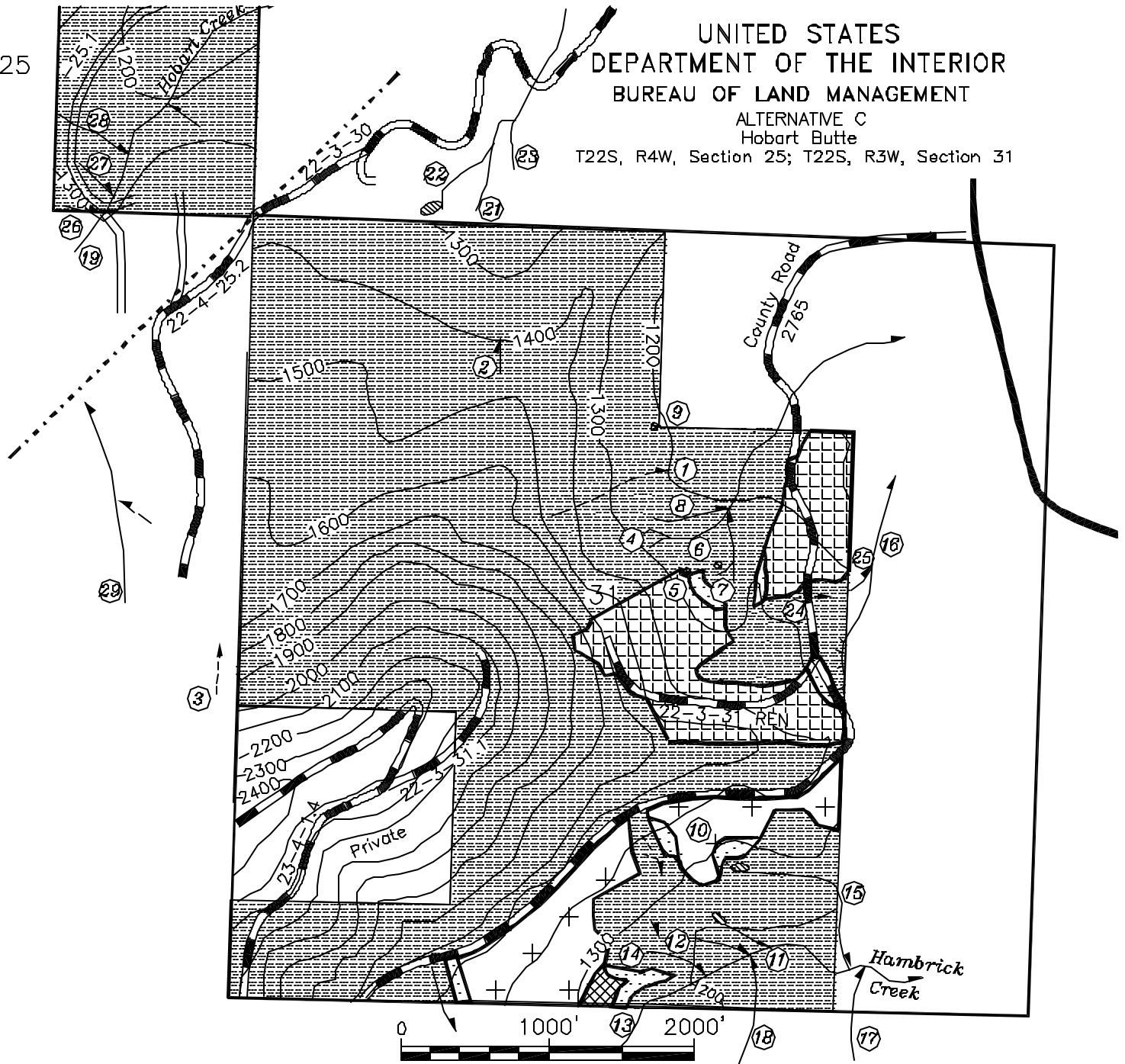
- ROAD TO BE CONSTRUCTED
- ROAD TO BE IMPROVED
- ROCK SURFACED ROAD
- PAVED ROAD
- DIRT ROAD
- BPA POWERLINE
- STREAM

25

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ALTERNATIVE C
Hobart Butte

T22S, R4W, Section 25; T22S, R3W, Section 31



SCALE
LEGEND

- MATRIX (Moderate Thin)
- MATRIX (Light Thin)
- RIPARIAN RESERVE (100-200 FOOT AREA - Heavy Thin)
- RIPARIAN RESERVE (200-400 FOOT AREA - Retain Same as Adjacent Matrix Uplands)
- RESERVE AREA

- ROCK SURFACED ROAD
- PAVED ROAD
- DIRT ROAD
- BPA POWERLINE
- STREAM

7/22/02

ENVIRONMENTAL ASSESSMENT NO. OR090-02-17
Hobart Butte Timber Sale
Timber Sale Tract No. E-99-376

Prepared by
Rick Colvin
Forester

February 2003

United States
Department of the Interior
Bureau of Land Management
Eugene District Office
Upper Williamette Resource Area